

### **REMARKS**

Applicants respectfully request that the above application be reconsidered, as amended. Claims 1-23 are currently pending.

At page 2 of the Office Action, the Examiner has rejected Claim 8 under 35 USC 112, second paragraph, as being indefinite. Specifically, the Office Action says that Claim 8 is dependent on itself and therefore lacks antecedent basis.

Responsive to this rejection, Claim 8 has been amended, without disclaimer or prejudice, to depend from Claim 7, as was originally intended. Accordingly, the rejection of Claim 8 under 35 USC 112, second paragraph, has been overcome.

Claims 1, 6, and 17 have been amended to recite that the second metal oxide is selected from lanthana, and mixtures of lanthana with gadolinia, neodymia, samaria or dysprosia. Claims 3, 11 and 21 have been similarly amended to recite that the second metal oxide is selected from lanthana, and mixtures of lanthana with gadolinia. Support for these amendments can be found in paragraph [0025] at pages 7-8 of the above application.

**A. Response to Rejection of Claims 1-2 under 35 USC 102(e) as Anticipated by Zhu et al**

At page 2 of the Office Action, the Examiner has rejected Claims 1-2 under 35 USC 102(e) as anticipated by U.S Patent 6,812,176 (Zhu et al).

Zhu et al discloses thermal barrier coating (TBC) compositions comprising a base oxide (zirconia and/or hafnia), a primary stabilizing oxide (yttria, dysprosia, erbia or combinations thereof), and a pair of Group A (preferably scandia and/or ytterbia) and Group B (preferably neodymia or gadolinia) dopant defect cluster-promoting oxides. See abstract and col. 1, line 66 through col. 2. line 11. See also Example 1 to 4 at col. 4-5 of Zhu et al disclosing four specific TBC compositions comprising zirconia as the base oxide, yttria as the primary stabilizer, ytterbia as the Group A dopant and either samaria, neodymia, gadolinia or neodymia/scandia as the Group B dopant.

Responsive to this rejection, Claim 1 has been amended to recite that the second metal oxide is selected from lanthana, as well as mixtures of lanthana with gadolinia, neodymia, samaria or dysprosia. By contrast, Zhu et al does not specifically disclose or suggest the

inclusion in its TBC compositions of lanthana, alone or in combination with gadolinia, neodymia, samaria or dysprosia.

Accordingly, Claims 1-2 are novel and unobvious over Zhu et al.

**B. Response to Rejection of Claims 3-23 under 35 USC 103(a) as Unpatentable over Zhu et al in view of Litton et al**

At pages 3-4 of the Office Action, the Examiner has rejected Claims 3-23 under 35 USC 103(a) as unpatentable over Zhu et al, in view of U.S. Patent 6,730,422 (Litton et al).

Responsive to this rejection, Claims 6 and 17 have been amended to recite that the second metal oxide is selected from lanthana, as well as mixtures of lanthana with gadolinia, neodymia, samaria or dysprosia; Claims 3, 11 and 21 have been similarly amended to recite that the second metal oxide is selected from lanthana, as well as mixtures of lanthana with gadolinia. By contrast, Zhu et al does not specifically disclose or suggest the inclusion in its TBC compositions of lanthana, alone or in combination with gadolinia, neodymia, samaria or dysprosia. Accordingly, Claims 3-23, as amended, are unobvious over Zhu et al.

Regarding Claims 8-23, page 3 of the Office Action concedes that Zhu et al does not expressly teach an article having its TBC coating composition, but alleges that Zhu et al teaches that its TBC coating composition can be used as a thermal barrier coating for a jet engine turbine blade. The Office Action further relies on Litton et al to allegedly teach a TBC comprising a zirconia-based ceramic with multiple oxides added thereto, and that Litton et al also discloses including a bond coat.

Again, Zhu et al does not specifically disclose or suggest the inclusion in its TBC compositions of lanthana, alone or in combination with gadolinia, neodymia, samaria or dysprosia according to amended Claims 8-23. Litton et al also does not specifically disclose or suggest the ceramic compositions of amended Claims 8-23 comprising zirconia, a first metal oxide selected from yttria, calcia, ceria, scandia, magnesia, india and mixtures thereof, a second metal oxide selected from lanthana or mixtures of lanthana with gadolinia, neodymia, samaria or dysprosia, and a third metal oxide selected from ytterbia, erbia and mixtures thereof. Note in particular that for all embodiments specifically disclosed in Litton et al of TBCs comprising metal oxides of formula  $A_2O_3$  that include a lanthanum oxide, the metal oxides of formula  $A_2O_3$

comprise at least 15 mole % of the TBC. By contrast, the ceramic compositions of Claims 8-23 comprise up to about 9 mole % combined first, second and third metal oxides, including lanthana. Note also that Examples 1, 2 and 3 of Litton et al disclose preferred compositions comprising zirconia with yttria, mixtures of yttria and gadolinia, or samaria, but not lanthana.

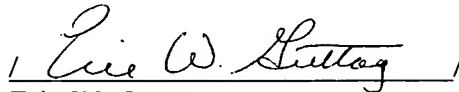
Accordingly, Claims 3-23 are unobvious over Zhu et al, even in view of Litton et al.

**C. Conclusion**

In conclusion, Claims 1-23, as amended, comply with the requirements of 35 USC 112, second paragraph. Claims 1-23, as amended, are also novel and unobvious over the prior art relied in the Office Action. Accordingly, Applicants respectfully request that Claims 1-23, as amended, be allowed to issue in the above application.

Respectfully submitted,

For: Irene SPITSBERG et al

A handwritten signature in cursive script, reading "Eric W. Guttag", is written over a horizontal line. The signature is enclosed in a larger set of parentheses.

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